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(11)

**EP 1 248 376 A3**

(12)

**EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
02.01.2004 Bulletin 2004/01

(51) Int Cl.7: **H03M 3/02**

(43) Date of publication A2:  
09.10.2002 Bulletin 2002/41

(21) Application number: **02252366.6**(22) Date of filing: **02.04.2002**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE TR**  
Designated Extension States:  
**AL LT LV MK RO SI**

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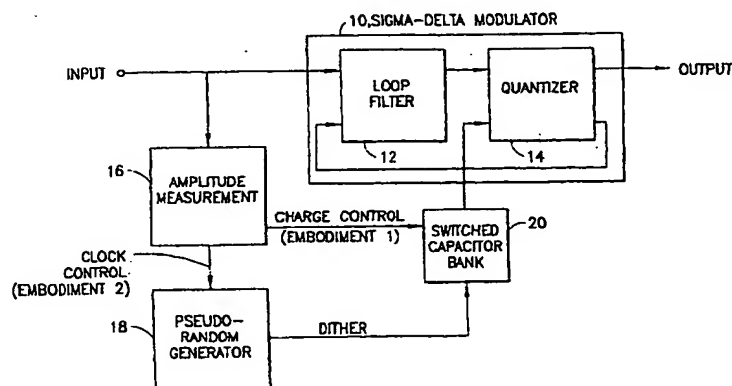
(30) Priority: **05.04.2001 US 826980**

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(54) **Method and apparatus for providing signal dependent dither generator for sigma-delta A/D modulator**

(57) A method is disclosed to operate a sigma-delta modulator of a type that includes a quantizer. The method has steps of (a) sampling an amplitude of an input signal to the sigma-delta modulator; and (b) controlling the switching of a capacitance bank in accordance with the sampled amplitude of the input signal for generating a dither signal at an input of the quantizer. The dither signal is generated to have a pseudorandom amplitude that is inversely proportional to the sampled amplitude of the input signal. The step of controlling and generating operates a linear feedback shift register to switch individual ones of a plurality of capacitances of the bank of capacitances in and out of a capacitance network. In one embodiment the step of operating the at least one

linear feedback shift register turns a linear feedback shift register clock signal on and off as a function of the amplitude of the input signal. In one embodiment the step of sampling operates at least one window detector, and the dither signal is turned off and on depending on a relationship between the amplitude of the input signal and voltage thresholds of the window detector. In another embodiment the step of sampling operates a rectifier that rectifies the input signal to provide a rectified output signal, and the step of controlling and generating pseudorandomly applies the rectified output signal to the bank of capacitances for controlling an amount of current that is transferred between the input of the quantizer and the bank of capacitances.

**FIG. 1****EP 1 248 376 A3**



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## EUROPEAN SEARCH REPORT

Application Number  
EP 02 25 2366

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Place of search MUNICH		Date of completion of the search 31 October 2003	Examiner Morrish, I
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EPO FORM 1503 03.02 (P04C01)

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31-10-2003

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